ionCube Ltd.

Presentation to Kent University 2017

Hello!

I am Nick Lindridge

MD ionCube Ltd. - Software company

Plus Chris & Nick, Kent Uni Comp Sci. IP students

ioncube.com   ioncube24.com

Overview

- About ionCube

- What ionCube offers

- Who are we looking for
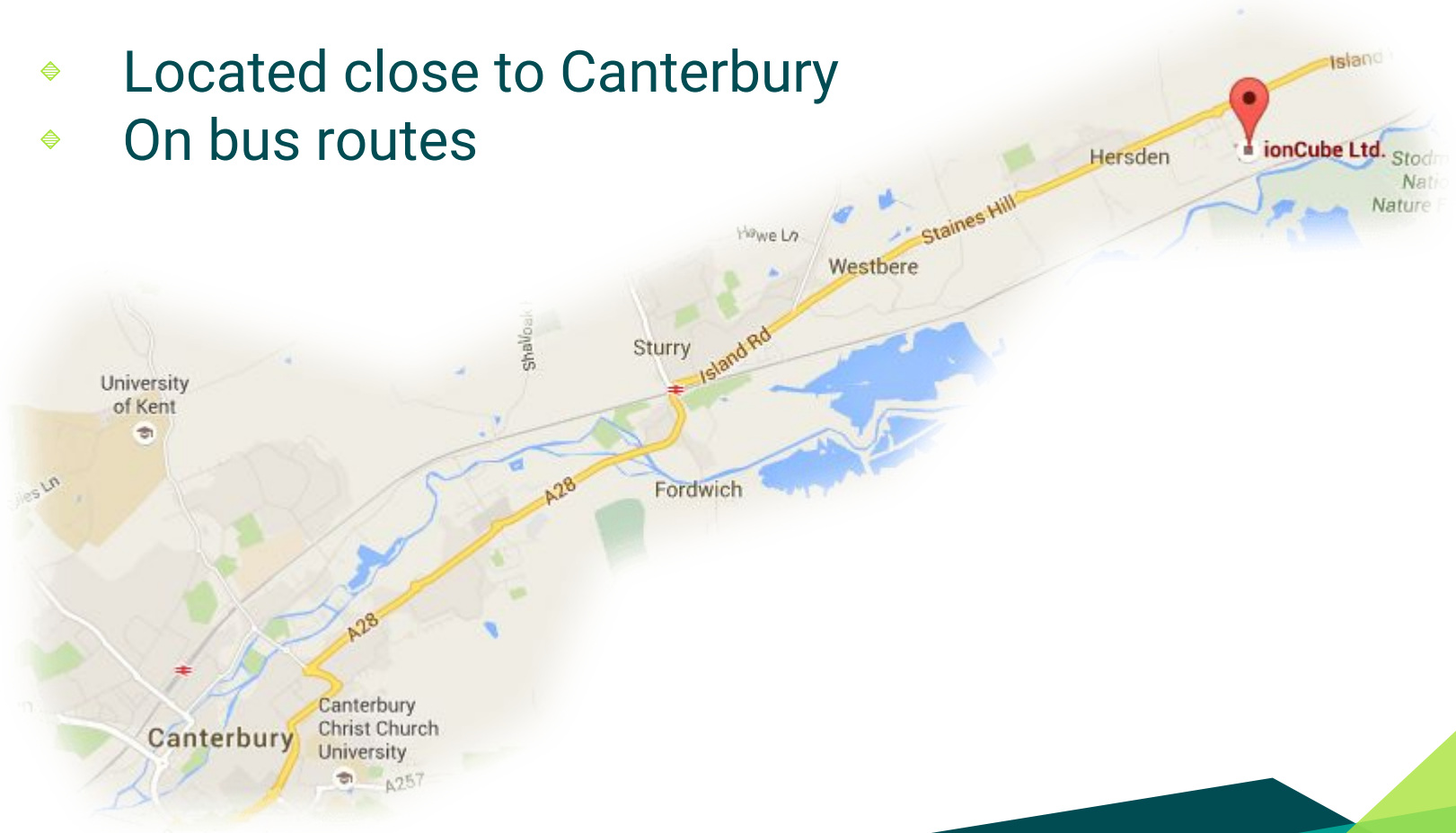
- Technologies we use

- Questions - anything not covered?

1.
About ionCube

About ionCube - where are we?

- ◈ Located close to Canterbury
- ◈ On bus routes

About ionCube - our building

About ionCube - what we do

Develop #infosec and monitoring solutions

- ionCube PHP Encoder - protect/license PHP code
- online PHP Encoder
- ionCube24 - real-time protection against website vulnerability exploits and system/user monitoring

Top countries USA, Germany, UK, China, Russia, Netherlands, Indonesia, Turkey, India, Italy, France, 100+.

Products - PHP Encoder

- PHP remains highly popular - used by 82.4% of websites - w3techs.com, 25 jan 2017

- Many commercial developers want to protect and license code

- Website owners (should) want to protect database passwords

Products - PHP Encoder

- Compiles PHP to Virtual Machine bytecode

- ionCube Loader PHP extension runs code with modified PHP execution engine

- Encrypt code sections with runtime generated encryption keys to solve static key issue

```
// @ioncube.dk g(14) -> "octoberon"
function fn($p)
```

- Licensing solutions

Products - PHP Encoder

- Encoder/Loader codebase - C

- GUI - C++ / wxWidgets

- Windows, Linux, FreeBSD, OS X

- Continuous development to support new versions of PHP, run code from previous Encoders and add new features

Products - ionCube24
Monitoring & Security Platform

- Platform with a growing suite of website monitoring services

- Users can reduce the dependency on multiple 3rd party services

- Adds protection against vulnerabilities, and offers monitoring of applications, infrastructure and end user experience.

Five a day

Website vulnerabilities

- Small web hosting business reports average of 5 customer websites hacked every day

- Sites are often hacked with code upload exploits

- Vulnerable plugins unpatched

- New vulnerabilities exploited

ionCube24 - First Feature
Intrusion detection

- Take advantage of Loader's hooks into PHP

- ionCube Loader caches file metadata

- Detect new/changed files as potential malware

- Block execution to prevent damage

- Real-time notifications and alerts

ionCube24
Notifications

SECURITY NOTIFICATIONS

Mark all as read   Sort ⌄   Filter ⌄

When a notification is read: ☑ Acknowledge file   ☐ Allow file if blocked

❯ New file detected 12   7 days ago   ✓

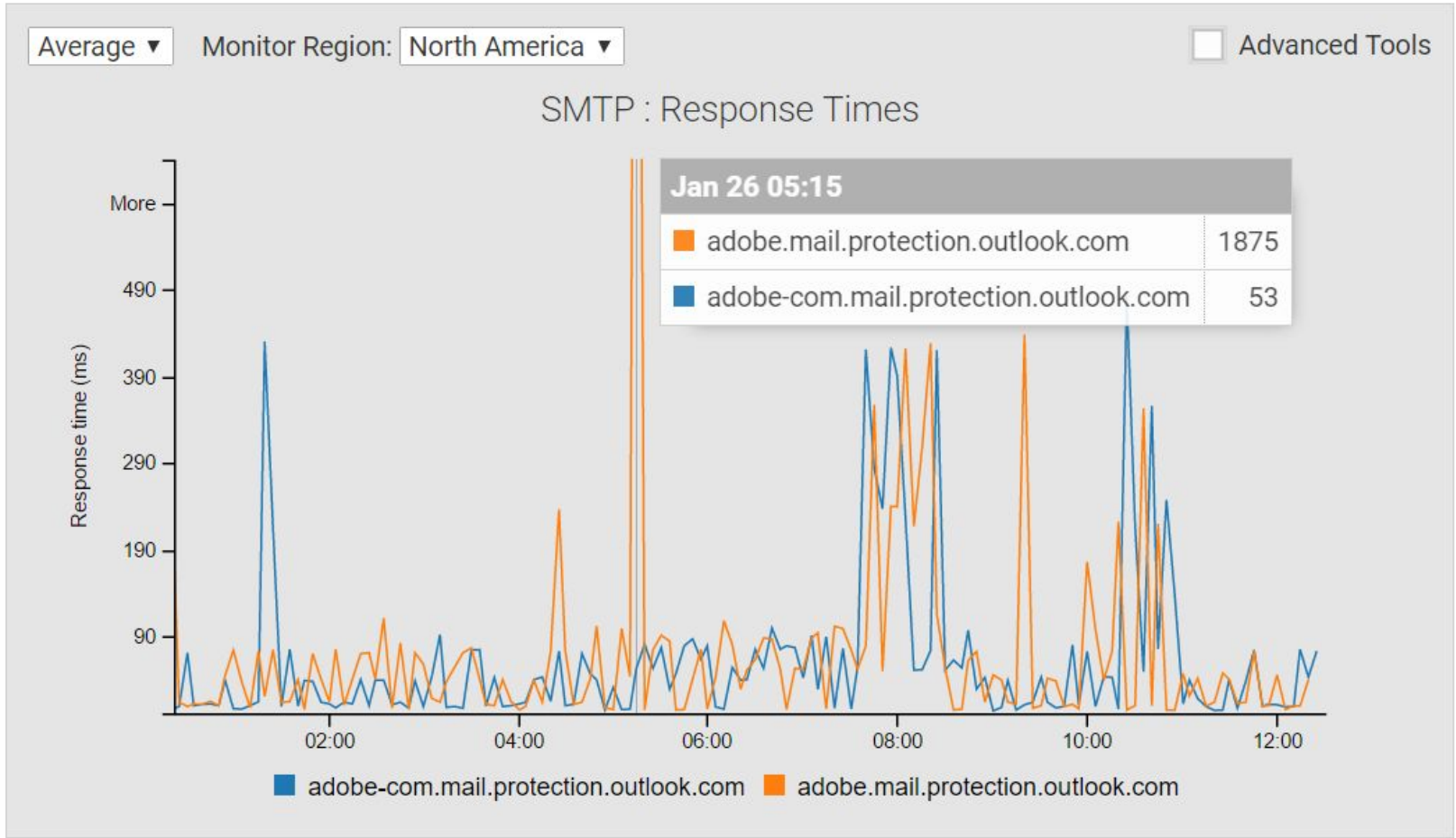The file 'functions.php' was blocked on blog.ioncube.com (DO Blog)

ionCube24
Server monitoring

- User adds domain

- Monitors for common services automatically created

- Monitor nodes in EU, US, Singapore, Bangalore

- Real time charts

- Charts enhanced and HTTP monitor plus alerting added by Chris in C++.

ionCube24
Server monitoring

ionCube24
Error reporting

- PHP errors captured and reported in real time

- Charts and reporting

- Real time Javascript error reporting
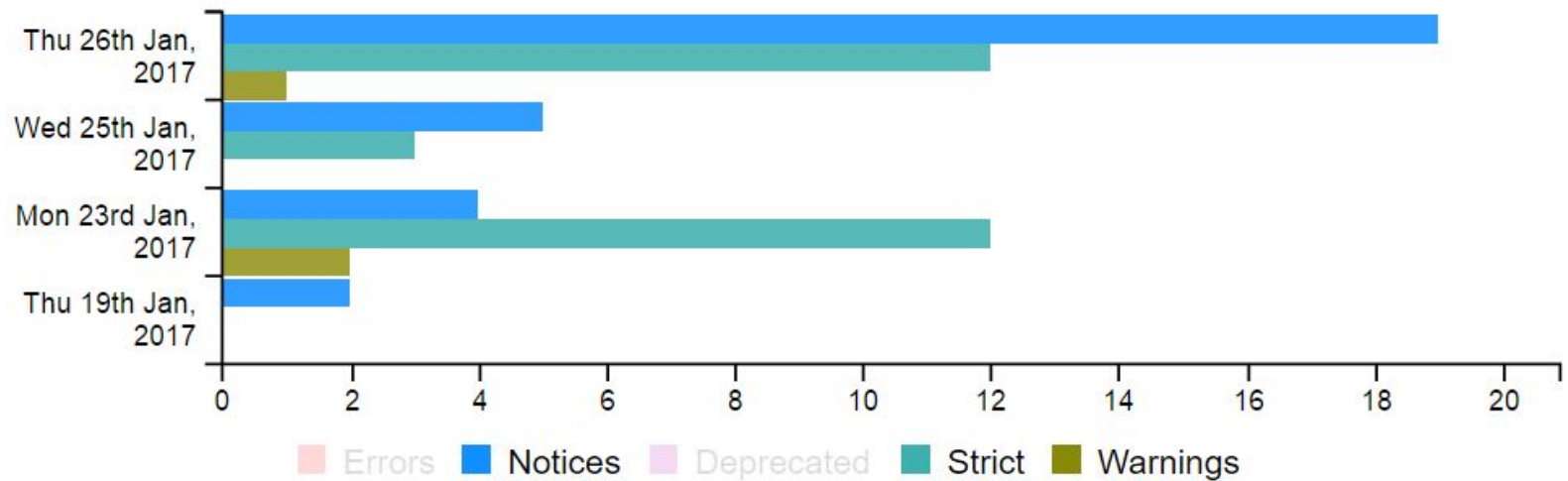
ionCube24
Error reporting

« | »		10 25 50 100

Warnings	/home/projects/kayako_fusion/releases/fusion-stable-sourceobf-4-66-2-7980-da15feb/upload/__swift/library/Cron/class.SWIFT_CronManager.php	Line 555 *chmod()*: Operation not permitted First Reported: 2017-01-22 16:04:45 Last Reported: 2017-01-23 08:27:25	☐
Warnings	/home/projects/kayako_fusion/releases/fusion-stable-sourceobf-4-66-2-7980-da15feb/upload/__swift/library/Input/class.SWIFT_Input.php	Line 487 *html_entity_decode()*: charset `utf8' not supported, assuming utf-8 First Reported: 2016-03-16 15:06:11 Last Reported: 2017-01-23 14:07:20	☐
Warnings	/home/projects/kayako_fusion/releases/fusion-stable-sourceobf-4-66-2-7980-da15feb/upload/__swift/library/ionCubeAPI/class.SWIFT_ionCubeAPI.php	Line 30 *fsockopen()*: php_network_getaddresses: getaddrinfo failed: Name or service not known First Reported: 2016-03-14 20:44:39 Last Reported: 2017-01-26 10:05:22	☐

ionCube24
Reseller and User API

◈ REST API for updating TrustPoint and account operations

◈ Extended in future for new features

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Real User Monitoring

- Capture mouse movements and other activity

- Insight into user intent

ionCube24
Tech stack

- AngularJS javascript frontend framework - modern alternative to jQuery

- Node.js / Socket.io real-time feed

- Phalcon C based PHP framework

- C++ based distributed service monitoring

- Maria DB (MySQL)

- Elastic Search / Lucene

2.

What ionCube offers

Successful placements and continued employment

- Industrial placements are a key part of the team

- Kent MSc student 2014-15. Employed after placement completed.

- Chris and Nick current BSc. students

Opportunity to gain broad knowledge

- Small team, expert mentoring, key roles

- Working with front and backend technologies

- Improving technical and soft skills

- Take ownership of work

- Creating code and not just patching others

Your workspace

Current placement students Chris

- What I've worked on:

  Back End stuff - mySQL, PHP, NodeJS, sh

  Real time monitoring of web services in C/C++

  Front End improvements with HTML/CSS/JS

  Client Side JS Error Reporting with WebSockets, NodeJS, Plain JavaScript

- Currently:

  Realtime website activity reporting

  Taken from proof of concept to complete

  Independent work, research.

- Exponentially increased my breadth and depth of knowledge.

  More than programming - UX/UI considerations? How should a feature work? Efficiency? Making decisions.

Current placement students
Nick

- Site Usability: Overhauled parts of the UI
- User API: Enables users to automate their interaction with the service
- Working with all aspects of the stack:

  Front: HTML/CSS/AngularJS

  Back: PHP/SQL, tasks written in both PHP and Bash

- Understanding the server environment
- Developed skills in system design, decision making
- Currently: Implementing site messages

What opportunities would I have at ionCube?

- Full stack dev - Unix, web server setup, shell scripts, middleware, javascript, Angular framework etc.
- Managing SQL database and new schemas
- Taking ownership of work
- Making decisions / being part of the decision process on product direction
- Increase breadth of knowledge, learn new languages and tools
- Getting to grips with version control

Other activities

- Chrome to debug, make JS/CSS live edits, review performance, explore CSS design changes

- Documentation, e.g. wiki or markdown

- Working with APIs, e.g. PayPal EC

- Researching new code libraries

- Writing Unix shell scripts to automate tasks

- Support tickets

- Having fun!

What would I learn?

- Lots. Uni is no substitute for real world experience
- Opportunity to gain much broader knowledge and to see the bigger picture than being a small part of a large company
- Gain development, deployment management, business related and customer oriented skills
- Work in a tech rich environment with a wide range of technologies and others passionate about our industry

3.

Who are we looking for

Ideal candidate?

- Passionate about creating solutions and problem solving

- Keen, curious and enthusiastic developers

- Some Unix experience useful but all can be learnt

- Expected grade is unimportant

- Demonstrating abilities, examples of own code from Uni or elsewhere more beneficial for candidate and employer, and more important than CV

4.
Technologies we use

Cloud Servers

- Digital Ocean - Droplets in US, Europe and Asia

- Amazon - AWS EC2 - Instances in US and Europe

Custom security and reporting infrastructure

- Constant light load of attack

- Occasional coordinated attacks with 100's machine botnets

- Custom Publish Subscribe infrastructure to monitor logs

- Alerts via PushOver apps

- Instant firewall block across all servers if flooding or vulnerability probing on any machine

More...

- Replication to Maria DB. Frequent and daily backups

- Subversion source code control

- PHP, Python, C, C++, JS, HTML5, CSS3

- Custom build farm for automated distributed builds

  e.g. `build @freebsd7-64`

- Mantis bug/feature tracker

- Composer / bower / gulp / rsync

- Cygwin - UNIX tools on Windows

- And much more...

5.
To Apply

Applications via

◈ www.ioncube.com/jobs

◈ Send a CV and let us know about your passion for tech, any projects and code outside Uni you've worked on, GitHub account if you have one, what you're looking for plus contact details and we'd love to chat with you.

Thanks!

Anything not covered?
Any tech questions?
Please ask!

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